

December 31, 1999

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State Water Resources Control Board  
901 P Street  
Sacramento, California 95814

Suisun Marsh Monitoring Program Channel Water Salinity Report for the Period of  
October 1 through November 30, 1999

The California Department of Water Resources is required to provide monthly channel water salinity compliance reports for the Suisun Marsh to the State Water Resources Control Board (SWRCB). This reporting requirement is based on SWRCB Water Rights Decision 1485, as amended by SWRCB Order 98-9 and Article 6(b) of the Suisun Marsh Monitoring Agreement.

I have attached a copy of *Suisun Marsh Monitoring Program Channel Water Salinity Report for the Period of October 1 through November 30, 1999*. The report includes data summaries and comparisons of the data with salinity standards. The report also includes a general discussion of water salinity conditions in the Marsh.

Please contact me at (916) 227-2727 or [lcook@water.ca.gov](mailto:lcook@water.ca.gov) if you have any questions.

Sincerely,

## ATTACHMENT

### **Suisun Marsh Monitoring Program Channel Water Salinity Report for the Period of October 1 through November 30, 1999**

#### **Background**

Conditions affecting channel water salinity levels in the Suisun Marsh include Delta outflow, rainfall and local creek inflow, managed wetlands operations, and operation of the Suisun Marsh Salinity Control Gates (SMSCG). Evaporation may also affect salinity levels in the Marsh, especially during summer months. Additionally, Order WR 98-6, issued by the SWRCB on September 25, 1998, authorized DWR to experimentally test the effects of modified flashboards at the SMSCG on salmon behavior. The modifications include gaps between adjacent flashboards expected to facilitate salmon passage through the SMSCG. When in place, these modified flashboards tend to allow channel salinity levels in the Marsh to rise somewhat higher than when the original flashboards are used. Experimentation with the modified flashboards began in October 1998 and will continue periodically through May 2001.

Channel water salinity standards (Table 1), expressed as specific electrical conductivity (SC), are specified in State Water Resources Control Board (SWRCB) Order WR 98-9 for seven compliance monitoring stations within and near the Suisun Marsh (Figure 1). Four of these -- National Steel (S-64), Beldon's Landing (S-49), Volanti (S-42), and Sunrise (S-21) -- are located in the northern and eastern portions of the Suisun Marsh. Another, Collinsville (C-2), is located just east of the Marsh in the western Delta. The two remaining stations, Morrow Island (S-35) and Ibis (S-97), are located in the western Marsh. The date to begin compliance at S-35 and S-97 was extended through April 2000 by the SWRCB. While S-35 and S-97 are currently only monitoring stations, data are included in this report for information purposes.

Compliance with SWRCB channel salinity standards for the Suisun Marsh is determined at the end of each month by comparison of the monthly mean SC level at high tide for each compliance monitoring station with the standard. The progressive monthly mean SC is used to trace salinity conditions during each month. The progressive mean is calculated for each station by averaging mean SC at high tide for a given day and all previous days that month. New progressive mean calculations begin at the start of each month.

#### **Results and Discussion**

Salinity standards were met at all compliance monitoring stations during the reporting period (Table 1 and Figures 2 and 3).

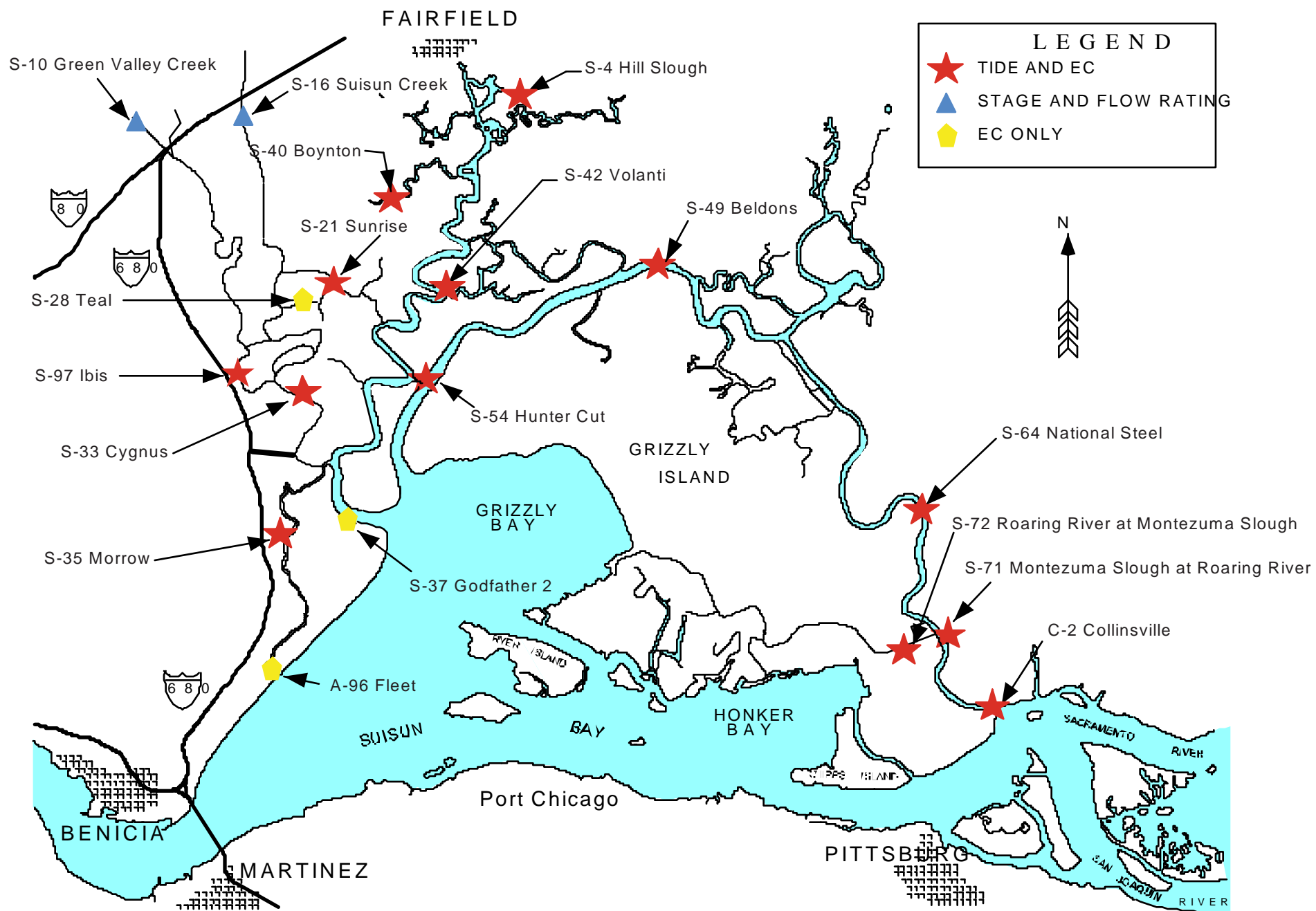
The SMSCG was operated with the original non-modified flashboards from September 27 through October 14, 1999. From October 15 through November 9, 1999 the gates were left in the open position with all flashboards out. The gates were then operated with the modified flashboards for the remainder of the reporting period.

Total rainfall at the Waterman Gauging Station in Fairfield was relatively small during the reporting period. Total rainfall was measured at 0.56 inches in October and 2.51 inches in November.

Channel salinity levels in the Marsh during October and November were mostly a function of Delta outflow and SMSCG operation. Increased rainfall and Delta outflow in November caused a small decrease in salinity levels after about November 10, 1999.

Monthly mean SC at high tide at the five compliance monitoring stations and at monitoring stations S-35 and S-97, were compared with means for the previous nine years. Values during the reporting period were higher at all stations compared to those of 1998, but similar to those in 1996 and 1997 (Figures 5 and 6).

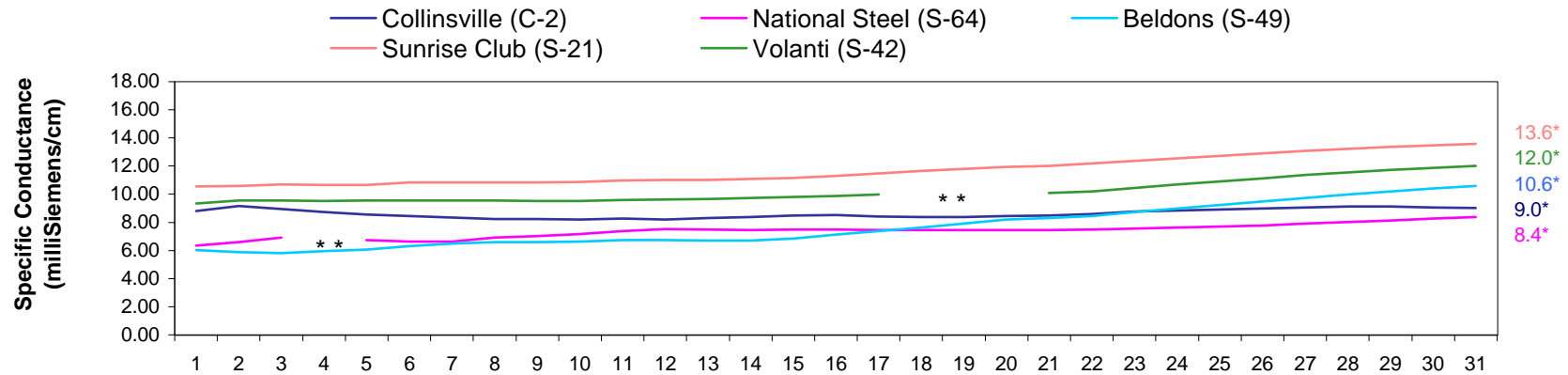
Figure 1. Suisun Marsh Continuous Compliance and Monitoring Stations



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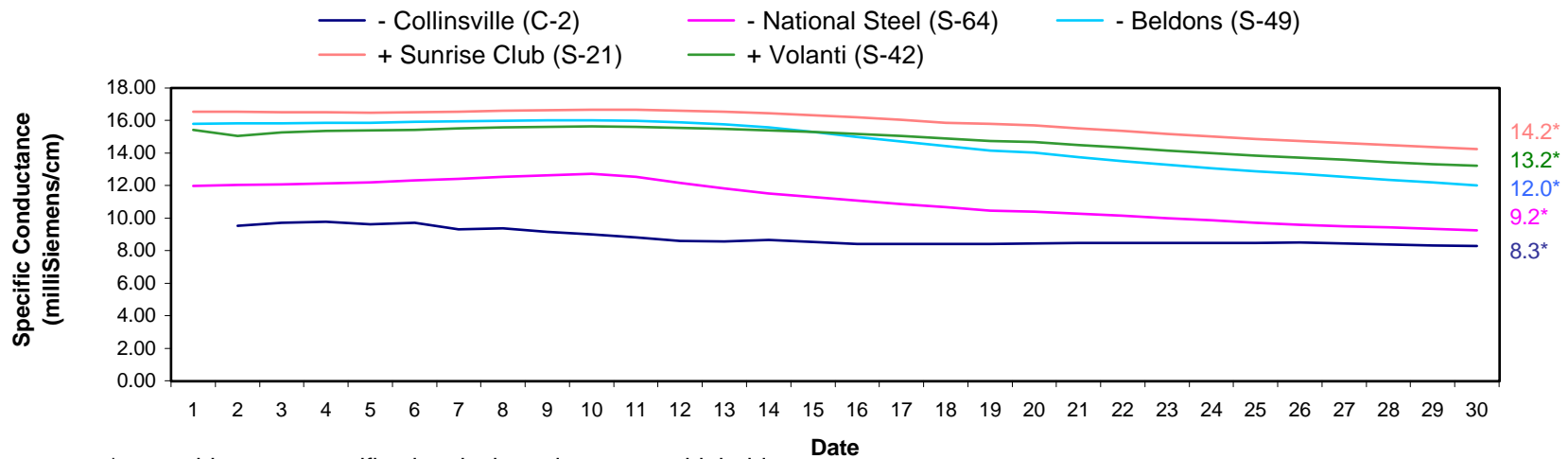
**Figure 2. Progressive Mean of Specific Conductance at High Tide for  
Suisun Marsh Compliance Monitoring Stations, October 1999**

Standard: 19.0 mS/cm



**Figure 3. Progressive Mean of Specific Conductance at High Tide for  
Suisun Marsh Compliance Monitoring Stations, November 1999**

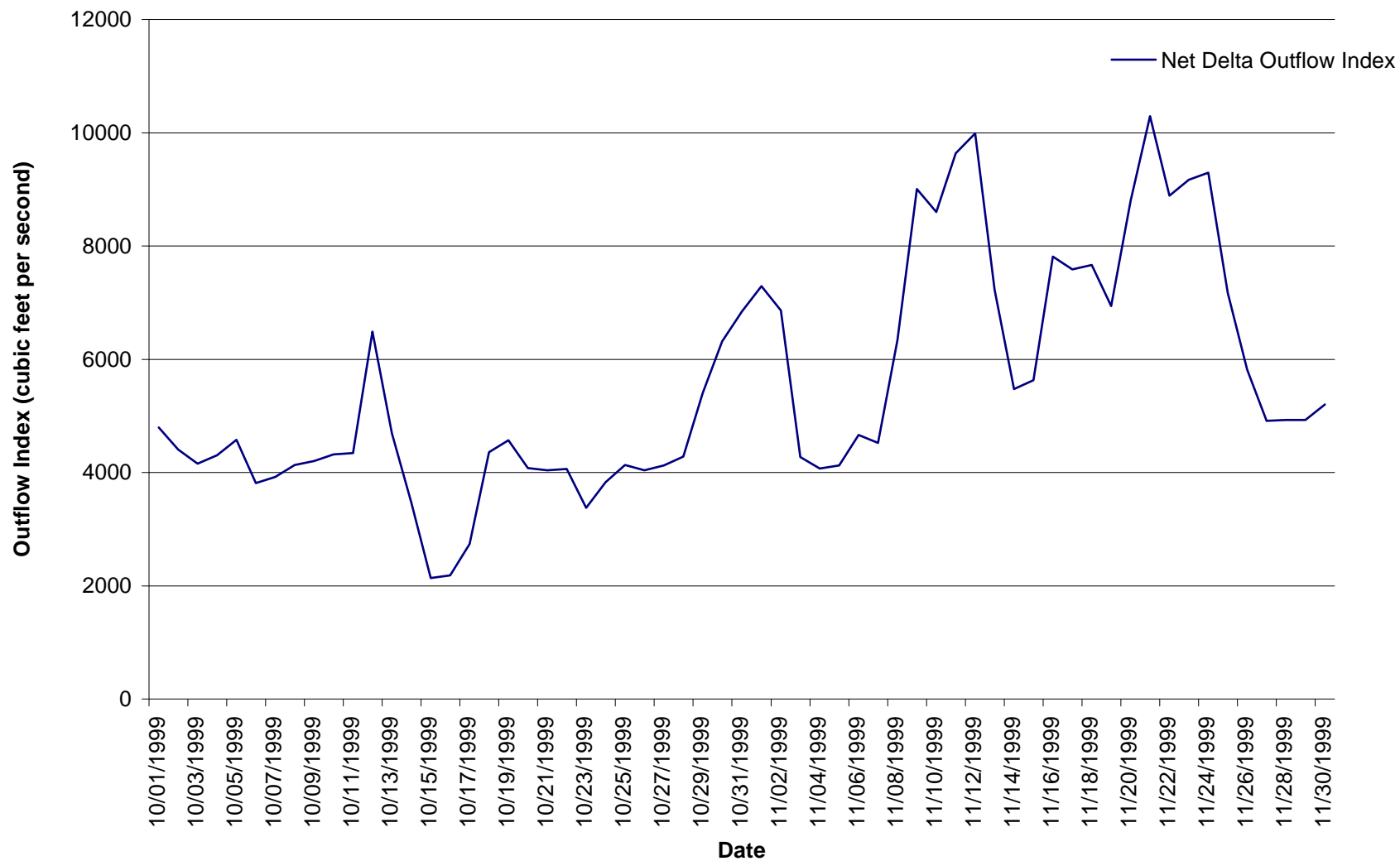
Standard: 15.5 mS/cm (for "-" stations)  
Standard: 16.5 mS/cm (for "+" stations)



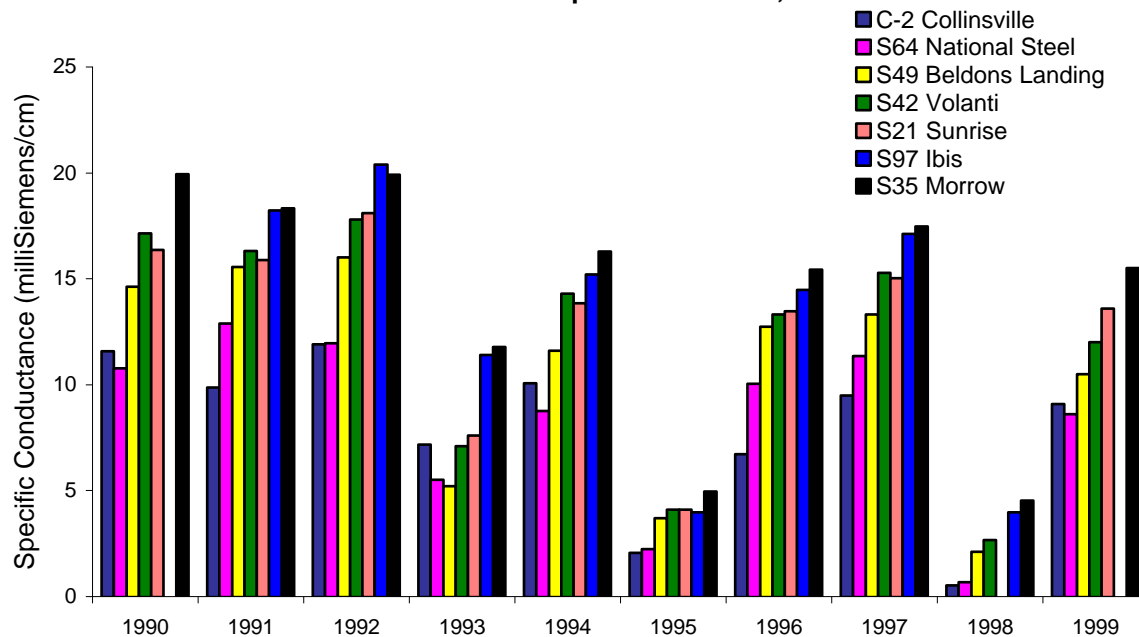
\* monthly mean specific electrical conductance at high tide.

\*\* data not available .

**Figure 4. Net Delta Outflow Index for  
October 1 through November 30, 1999**



**Figure 5. Comparison of Mean Monthly Specific Conductance at High Tide for Selected Suisun Marsh Compliance Stations, October 1990-1999**



**Figure 6. Comparison of Mean Monthly Specific Conductance at High Tide for Selected Suisun Marsh Compliance Stations, November 1990-1999**

